

Claims:

What is claimed is:

1. An event-driven flow control method in a switching node comprising at least one shared resource, the status of said at least one shared resource being determined by an associated resource metering unit characterizing the occupancy of said at least one shared resource, said method, using a timer, comprising:

- in said shared resource,
- 10 - generating an event when the occupancy of said at least one shared resource changes; and,
- transmitting said event to devices sharing said at least one shared resource;
- each time said timer elapses,
- 15 - getting a partial status of said at least one shared resource; and,
- transmitting said partial status to devices sharing said at least one shared resource.

2. The method according to claim 1 further comprising:

- 20 - in devices sharing said at least one shared resource,
 - updating a local status based on said partial status and on said events; and,
 - forwarding traffic according to said local status.

3. The method according to claim 2 including, prior to said forwarding:

- checking said local status for completeness;
- determining whether enough of said events and of said partial status have been gathered; and,
- if enough of said events and of said partial status have been gathered, enabling said forwarding step.

4. The method according to claim 1 or 2 wherein an event is generated when the occupancy or the occupancy variation of said at least one shared resource reaches at least one predetermined threshold.

5. The method according to claim 1 wherein said event or said partial status is transmitted through a dedicated channel.

6. The method of claim 1 or 2 wherein said step of transmitting said event to devices sharing said at least one shared resource comprises inserting said event or said partial status in at least one packet header.

7. The method according to claim 1 wherein said step of transmitting said event or said partial status to devices sharing said at least one shared resource comprises generating at least one flow-control packet comprising said event or said partial status.

8. The method according to claim 1 or 2 further comprising prioritizing and queuing events, when several events occur simultaneously, before transmitting sequentially said events.

9. The method according to claim 1 wherein said events and
5 said partial status are broadcast to all devices or multicast to groups of devices, said method further comprising discarding those of said events and said partial status that are irrelevant for a particular device.

10. The method of claim 1 wherein said resource metering unit
10 comprises at least one counter, an event being generated each time said counter reaches at least one predetermined threshold.

11. The method of claim 1 wherein said shared resources consist of shared memories or shared link bandwidths.

12. The method according to claim 1 wherein said partial
15 status is obtained through a scrolling of said resource metering units.

13. The method according to claim 1 wherein said partial status is a complete status.

14. An apparatus comprising:
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a resource;

a plurality of devices operatively coupled to said resource, said plurality of devices sharing said resource;

a first metering unit to evaluate the level of

utilization of said resource;

a timer to generate timing signal upon expiration of predefined time intervals; and

an event reporting unit responsive to timing signal to
5 generate an event signal to be forwarded to the plurality of devices if a threshold in said metering unit is exceeded.

15. The apparatus of claim 14 further including a second metering unit to measure the status of said resource and forwarding a signal representation of said status to said
10 devices.

16. An event-driven flow control method comprising

providing in a network node at least one resource to be shared by a plurality of devices;

providing, in said network node, event measuring units to
15 measure events that change the occupancy of said resource;

providing in said resource a resource metering unit that measures capacity of said resource;

providing in said network node a timer;

monitoring the event measuring unit and generating an
20 event signal when a threshold in said event measuring unit is crossed;

monitoring the resource metering unit and generating a partial status signal each time said timer elapses; and

transmitting said partial status signal.

17. The method of claim 16 further comprising transmitting the event signal.

18. The method of claim 16 wherein the partial status signal is being transmitted to device sharing said at least one resource.

19. The method of claim 17 wherein the event signal is being transmitted to device sharing said at least one resource.

20. The apparatus of claim 14 wherein the resource includes a memory.

21. The apparatus of claim 20 wherein the plurality of devices sharing said resource includes a plurality of network processor units (NPUs) generating and sending packets to be stored in said memory.